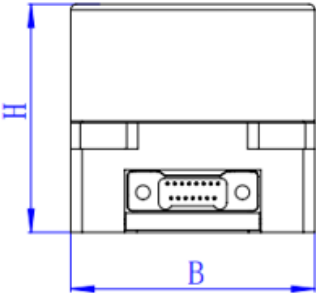
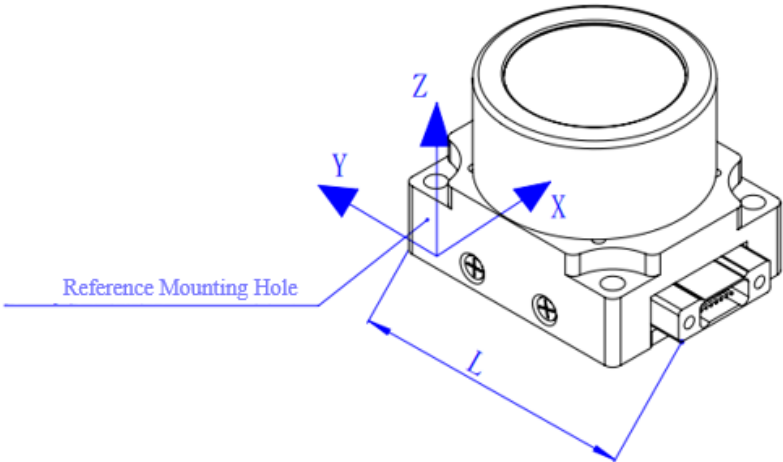


IDS 1: Performance Index

XXX	File Number	TYS-SS-G3-IDS	Page 1 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	
Parameters	Specifications					
Accuracy	0.1° (3σ)					
Field of View	85°					
Update Rate	10Hz					
Power Supply	5V ± 5%					
Ripple Voltage	100mV					
Inrush Current	≤2A/5ms					
Communication Protocol	RS422					
Life	5 years					
Reliability	≥0.98 @ the end of 5-year running					
Edited (Date):						
Signed (Date):		Mark			Signature, Date	

IDS 2: Mechanical Characteristics

XXX		File Number		TYS-SS-G3-IDS		Page 2 of 13	
		Sub-System Name		Attitude and Orbit Control			
		Device Name		Sun Sensor		Stage Mark	
		Device Code		SS-G3			
Device Weight: 19 ± 3 g		Device Count: 1					√
Mechanical Characteristics	Dimensions (mm)	L / X: 29.2 ± 1	B / Y: 21.5 ± 1	H / Z: 20.1 ± 1		√	
	CM Position (mm)	X: 8.75 ± 0.5	Y: -12.09 ± 0.5	Z: 9.43 ± 0.5		√	
	Inertia at CM (kg.mm ²)	$P_X = 1.548 \pm 0.2$	$P_Y = 1.253 \pm 0.2$	$P_Z = 1.567 \pm 0.2$		√	
					MEAS	CALC	EST
Mounting Characteristics	Mounting Hole Count: 4	Mounting Hole Dimensions (Tolerance) (mm): $\Phi 2.2 \pm 0.1$		Material: 2A12-T4	Determination Method (√)		
	Mounting Contact Area (mm ²): 110			Note: No grounding stud; grounding via mounting lugs.			
	Mounting Surface Flatness: 0.1mm/(100mm×100mm)						
	Mounting Surface Roughness Ra (μm): 3.2						
	Mounting Surface Treatment: Conductive Treatment						
Parameter relationship diagram (should indicate coordinate system relative orientation, CM position, device body dimensions, mounting surface location, etc.):  							
Note: The coordinate origin is located at the center of the reference mounting hole on the mounting surface. (see IDS 3: Instrument Diagram).							
Edited (Date):							
Signed (Date):		Mark			Signature, Date		

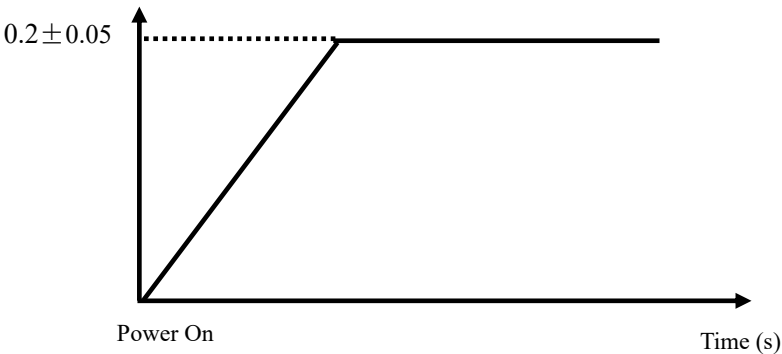
IDS 3: Instrument Diagram

XXX	File Number	TYS-SS-G3-IDS	Page 3 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	

Technical drawing of the Sun Sensor (IDS 3) showing four views: top, side, front, and isometric. The top view shows a rectangular component with dimensions 20.1 ± 1 (height), 7.4 ± 0.2 (width of the sensor array), and 21.5 ± 1 (total width). The side view shows a mounting lug with a conductive treatment. The front view shows a circular sensor array with dimensions 21.5 ± 1 (diameter), 22 ± 0.1 (inner diameter), 26 ± 1 (outer diameter), and 29.2 ± 1 (total height). It also shows 4-Ø2.2 ± 0.1 through holes and a reference mounting hole. The isometric view shows the component with a mounting lug and an electrical connector labeled I70A-2F2-015-431-TH. Coordinate axes X, Y, and Z are indicated for each view.

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Signed (Date):	Mark		Signature, Date

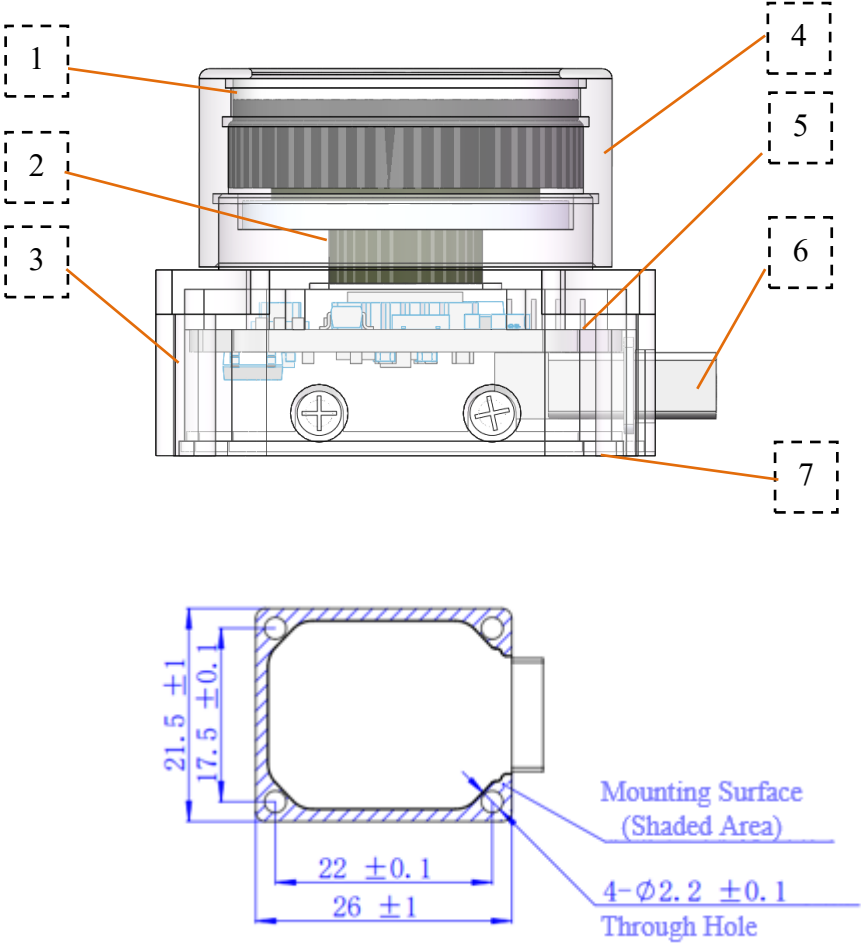
IDS 4: Thermal Characteristics

XXX		File Number	TYS-SS-G3-IDS		Page 4 of 13					
		Sub-System Name	Attitude and Orbit Control							
		Device Name	Sun Sensor		Stage Mark					
		Device Code	SS-G3				FM			
Material	Material: 2A12-T4		Note:							
	Density (kg/m³): 2800									
	Heat Capacity (J/K): 16.19±2									
	Specific Heat Capacity (J/(kg·K)): 875									
	Thermal Conductivity (W/(m·K)): 120									
Surface	Treatment: Aluminum Nature Color Bright Anodizing									
	Outer Surface Emissivity: $\epsilon_u \geq 0.6$									
	Solar Absorptance: $\alpha_s \leq 0.4$									
Start Temperature °C: -30~+40								Mounting Contact Area (mm²): 110		
Operating Temperature Range °C: -30~+40								Thermal Control Temperature Range °C: -30~+40		
Storage Temperature Range °C: -30~+40			Storage Relative Humidity Range: ≤70%							
Operating Power Consumption W: 0.2±0.05 (Per Device)			Preparing State Power Consumption W: 0 (Per Device)							
Description:										
Power Consumption (W)  Power On Time (s)										
Edited (Date):										
Signed (Date):		Mark			Signature, Date					

IDS 5: Thermal Diagram

	File Number	TYS-SS-G3-IDS	Page 5 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	

Diagram:



- 1 – Optical Filter 2 – Lens
3 – Main Housing 4 – Upper Housing
5 – PCB 6 – Electrical Connector
7 – Mounting Lug (Mounting Surface)

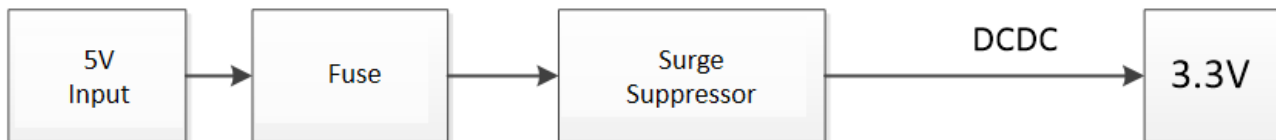
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IDS 6: Power

XXX		File Number	TYS-SS-G3-IDS	Page 6 of 13			
		Sub-System Name	Attitude and Orbit Control				
		Device Name	Sun Sensor	Stage Mark			
		Device Code	SS-G3			FM	
Operating Mode (Long Term/Short Term / Other)		Long Term			Device Count		1
Voltage	Voltage Stability	Ripple Voltage	Inrush Current (Peak / Duration)		Power Consumption		
5V	5%	≤100mV (p-p)	<2A/5ms		0.2±0.05W		

Notes:

Safe Operating Voltage: $5.0 \pm 0.25V$.



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Signed (Date):	Mark		Signature, Date

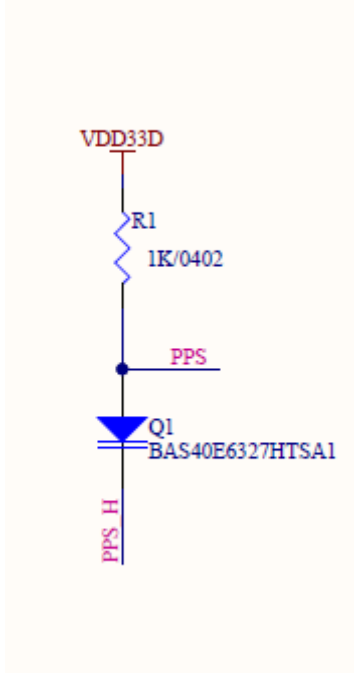
IDS 7: Electrical Connector Contact Assignment

XXX		File Number		TYS-SS-G3-IDS		Page 7 of 13	
		Sub-System Name		Attitude and Orbit Control			
		Device Name		Sun Sensor		Stage Mark	
		Device Code		SS-G3			
Name (by Function): X1		Electrical Connector: J63A-2F2-015-431-TH				Pin / Hole: Hole	
Contact Number	Signal (Function) Description	Voltage/V	Current/A	Polarity	Remarks (Shielded / Twisted)		
15	PPS_H			PPS Receive			
13,14	VIN	5.0V		Power	Two-point two-wire		
11,12	GND	0V		Power Ground	Two-point two-wire		
1,2	TXD+	RS422 Standard		RS422 Transmit+	Two-point two-wire		
3,4	TXD-	RS422 Standard		RS422 Transmit-	Two-point two-wire		
7,8	RXD-	RS422 Standard		RS422 Receive-	Two-point two-wire		
5,6	RXD+	RS422 Standard		RS422 Receive+	Two-point two-wire		
9	SWDCLK				Internal Use		
10	SWDIO						
Note							
Edited (Date):							
Signed (Date):		Mark				Signature, Date	

IDS 8: Electrical Interface Characteristics – RS422

	File Number	TYS-SS-G3-IDS	Page 8 of 13		
	Sub-System Name	Attitude and Orbit Control			
	Device Name	Sun Sensor	Stage Mark		
	Device Code	SS-G3			FM
Interface Signal	Digital Signal: RS422				
Signal Characteristics	RS422 Communication Baud Rate: 115200bps; Communication Method: Two-point Two-wire				
Interface Circuit					
Notes					
Edited (Date):					
Signed (Date):		Mark	Signature, Date		

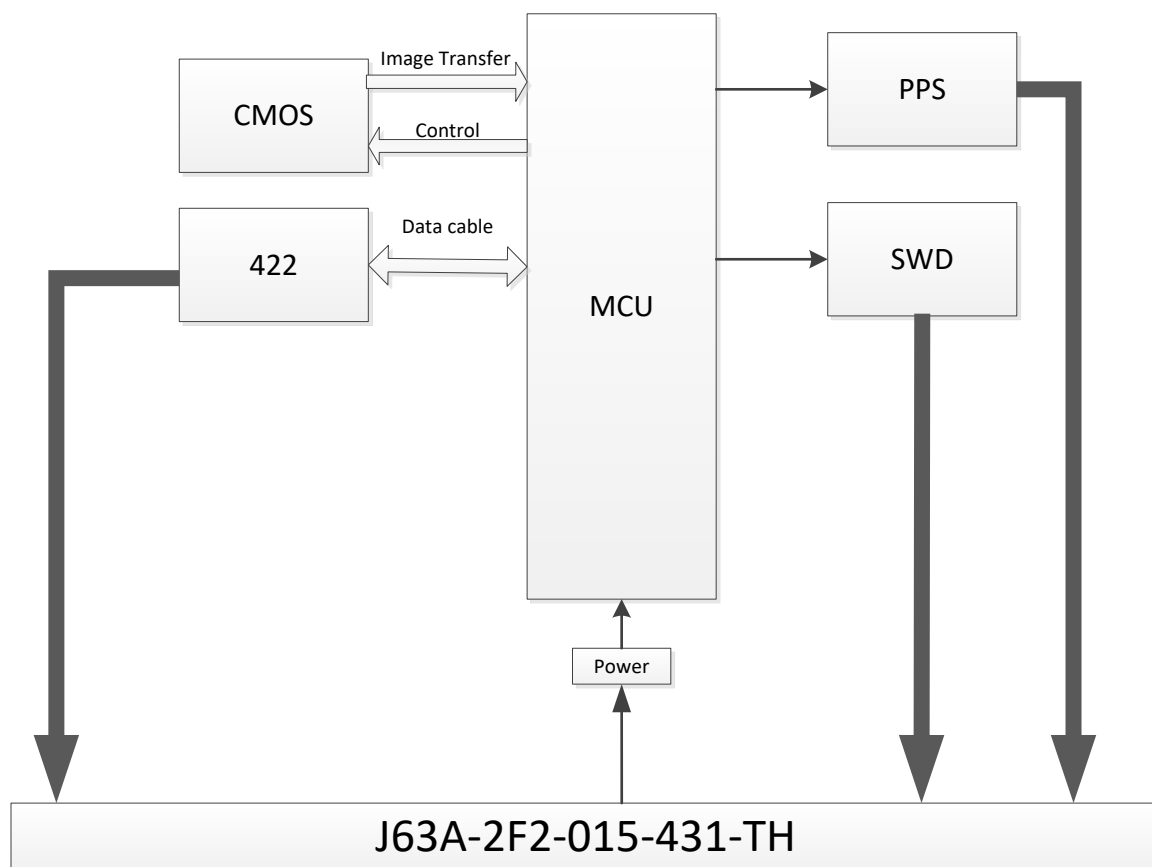
IDS 9: Electrical Interface Characteristics - PPS

		File Number	TYS-SS-G3-IDS	Page 9 of 13			
		Sub-System Name	Attitude and Orbit Control				
		Device Name	Sun Sensor	Stage Mark			
		Device Code	SS-G3			FM	
Interface Signal	Pulse per second (PPS)						
Signal Characteristics	Second pulse signal: single-ended input; Falling edge aligned to integer seconds; Negative pulse width 1ms.						
Interface Circuit							
Notes							
Edited (Date):							
Signed (Date):		Mark			Signature, Date		

IDS 10: Circuit and Interface Schematics

	File Number	TYS-SS-G3-IDS	Page 10 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	

Schematic Diagram :



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IDS 11: Device Grounding Diagram

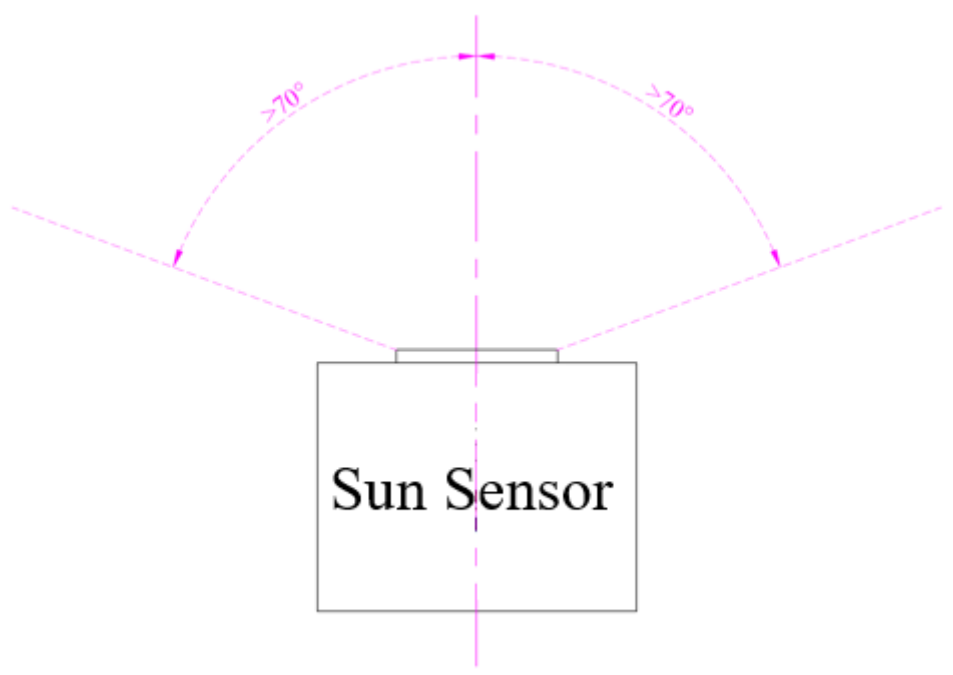
XXX	File Number	TYS-SS-G3-IDS	Page 11 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	

The diagram illustrates the grounding scheme for the Sun Sensor. An **Electrical Connector** provides a **+5V** supply to a **Fuse**, which is connected to a **Surge Suppressor**, and finally to the **Processor Circuit**. A common ground line labeled **-GND** connects the Electrical Connector to the Processor Circuit. Both the Processor Circuit and the **Sun Sensor Mounting Lug** are connected to a common ground point labeled **KGND** via a **Conductive** path. The entire system is grounded to **KGND**, represented by a ground symbol.

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IDS 12: Mounting Requirements

XXX	File Number	TYS-SS-G3-IDS		Page 12 of 13	
	Sub-System Name	Attitude and Orbit Control			
	Device Name	Sun Sensor		Stage Mark	
	Device Code	SS-G3			



The diagram shows a rectangular box labeled "Sun Sensor". A vertical dashed line extends upwards from the top center of the box. Two dashed lines branch out from the top corners of the box, forming a cone. The angle between these two dashed lines is marked with a pink arc and labeled ">70°" on both sides. The entire diagram is rendered in pink dashed lines.

Mounting Requirements:

1. Ensure that nothing sheltered in the field of view (no obstructions within the 140° cone from the top of the sun sensor lens end face).

Storage and Transportation Requirements:

1. The equipment shall be transported and stored in its packaging case.

2. During transportation, measures shall be taken for rain protection, dust protection, sun protection, and shock absorption.

Edited (Date):			
Signed (Date):	Mark		Signature, Date

IDS 13: Device Description

XXX	File Number	TYS-SS-G3-IDS	Page 13 of 13			
	Sub-System Name	Attitude and Orbit Control				
	Device Name	Sun Sensor	Stage Mark			
	Device Code	SS-G3			FM	
None.						
Edited (Date):						
Signed (Date):		Mark		Signature, Date		